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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,846	11/04/2003	Motoki Kakui	50395-236	4038

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EXAMINER

HUGHES, DEANDRA M

ART UNIT PAPER NUMBER

3663

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/699,846

Applicant(s)

KAKUI, MOTOKI

Examiner

Deandra M. Hughes

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDSs) filed on March 4, 2004 and April 7, 2004 have been considered by the examiner and is found to be cumulative to the art of record.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 6-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In particular, applicant claims that the two output peak wavelengths are 'discretionarily selected'. However, all means of 'discretionarily' selecting peak wavelengths have not been enabled.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, applicant claims that the two output peak wavelengths are 'discretionarily selected'. However, the means of 'discretionarily' selecting the peak wavelengths has not been distinctly claimed.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 6-7 (as best as they are understood), 8, and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Bolshtyansky et al. (US 6,456,426 published Sept. 24, 2002).

**The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

With regard to claims 1, 4, and 8, Bolshtyansky discloses a Raman amplification pump module (fig. 3; col. 5, lines 30-40) *for outputting pump light for Raman-amplification of signal light propagating through an optical waveguide path*, said module comprising:

- a light source system (#48) *for emitting light having two or more different output peak wavelengths (λ_1 - λ_4)*;
- and a nonlinear medium (as is disclosed in instant applicant's specification paragraph [0040]; nonlinear medium can be an optical fiber; #52) having

an input port (connected to #50) and an output port (other end of fiber #52), said nonlinear medium *affording nonlinear effect* (all optical fibers inherently impart non-linear effects) *on light emitted from said light source system and input from the input port, and outputting the resultant light as pump light from the output port* (fig. 3 is a pump module).

With regard to claim 10, Bolshtyansky discloses a broadband light source having an input port (connected to #50) and output port (other end of fiber #52) comprising:

- a light source system (#48) and a nonlinear medium (#52), wherein said light source system emits light having two or more different output peak wavelengths (λ_1 - λ_4);
- and said nonlinear medium *affords nonlinear effect on light input into the input port from said light source system* (all optical fibers inherently impart non-linear effects), and *outputs the resultant light as pump light from the output port* (fig. 3 is a pump module).

With regard to claim 11, Bolshtyansky discloses a Raman amplifier for amplifying signal light propagating through an optical fiber, said amplifier comprising:

- an optical fiber for Raman amplification (fig. 2, #16), a multiplexing module (fig. 2, #34), and a Raman amplification pump module (fig. 3), said Raman amplification pump module comprising:
 - o a light source system (#48) *for emitting light having two or more different output peak wavelengths* (λ_1 - λ_4);

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- and a nonlinear medium (#52) having an input port (connected to #50) and an output port (other end of fiber #52), *said nonlinear medium affording nonlinear effect (all optical fibers inherently impart non-linear effects) on light emitted from said light source system and input from the input port, and outputting the resultant light as the pump light from the output port (fig. 3 is a pump module).*

With regard to claim 2, a high output power laser is disclosed (col. 6, lines 60-65) and the multiplexers are fig. 3, #50. Further, the phrase “*capable of causing optical parametric effect*” is a functional limitation. See below.

With regard to claim 3, the lasers do not have temperature-adjusting means.

With regard to claims 6-7, the wavelength spacing is more than 2nm (col. 6, lines 3-40). Further, the Examiner considers the language directed towards the discretionary selection of the output wavelengths to be function language. See below.

The Examiner considers the claim language identified in italics above to be a functional limitation, i.e. intended use. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. Since the structural limitations have been met by the prior art, the Examiner has reason to believe that the function limitation can be performed by the prior art structure. See MPEP 2114.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bolshtyansky et al. (US 6,456,426 published Sept. 24, 2002) in view of Agrawal (Fiber-Optic Communication Systems; May 28, 2002).

Bolshtyansky does not specifically disclose the claimed equations. However, Agrawal teaches that these equations may be achieved via routine mathematical calculations well known in the art (pgs. 243-246). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to apply the analytic equations of Agrawal to the device of Boltshyansky for the advantage of minimizing amplifier noise.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Inoue discloses a Raman amplifier pump module.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).


Deandra M Hughes
Examiner
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